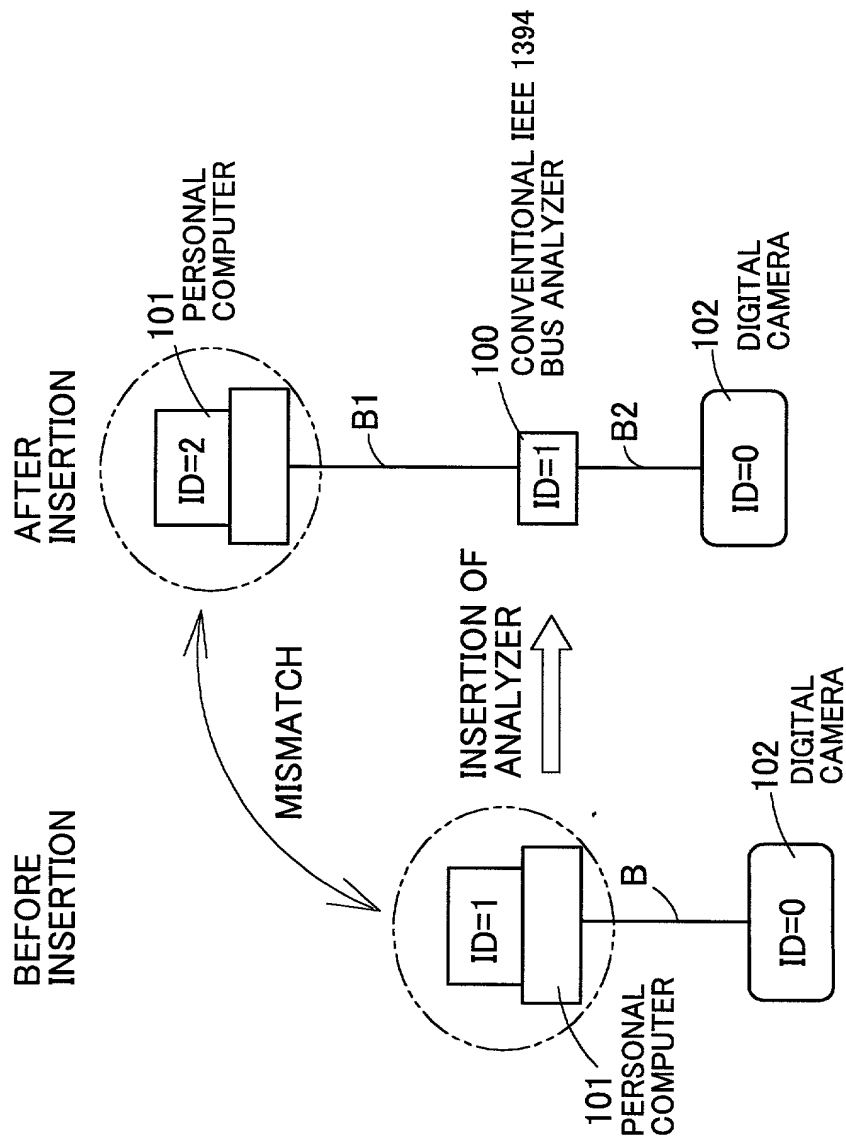


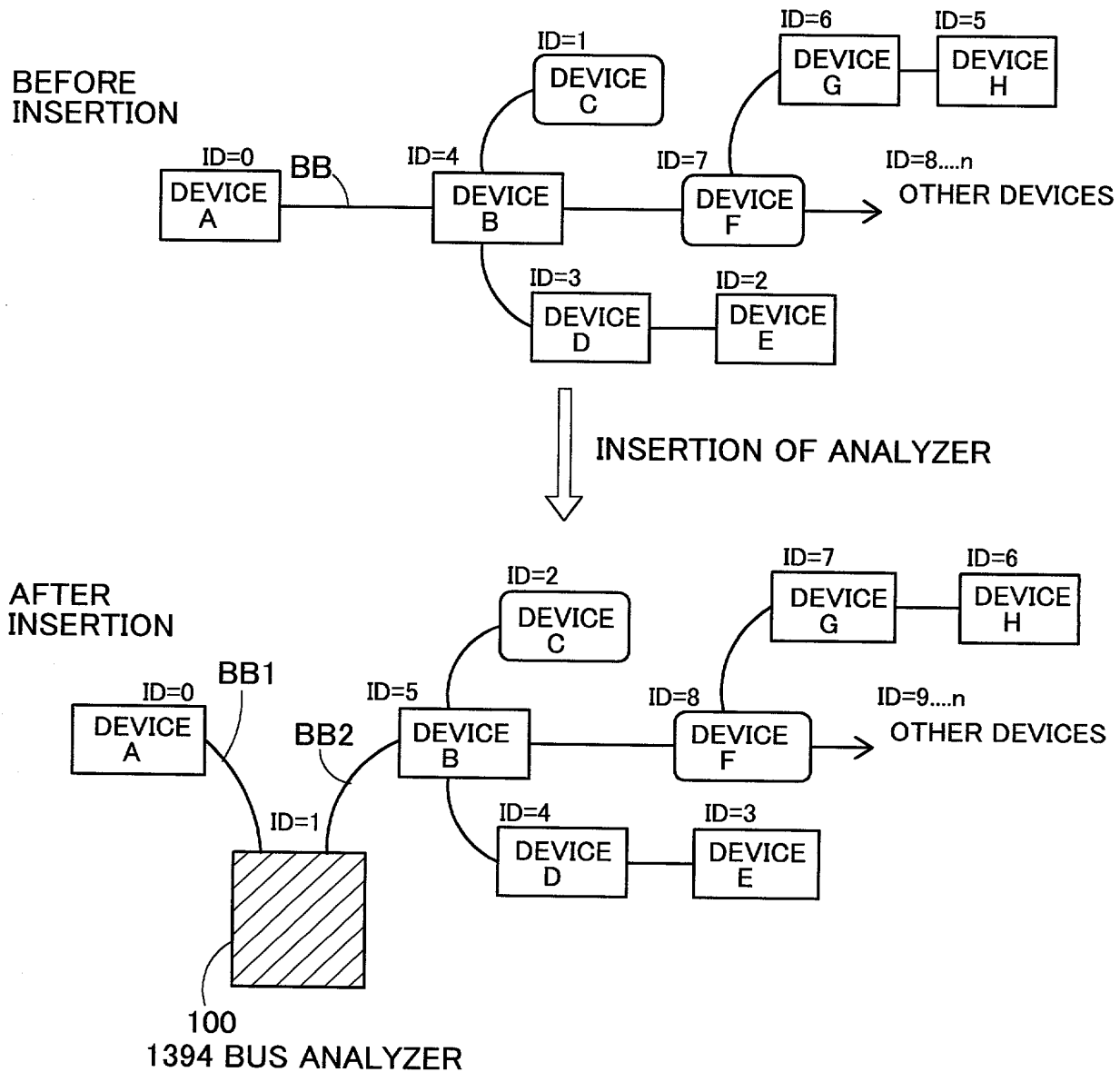
FIG. 1

CONSTRUCTION OF IEEE 1394 BUS TO WHICH  
CONVENTIONAL BUS ANALYZER IS CONNECTED

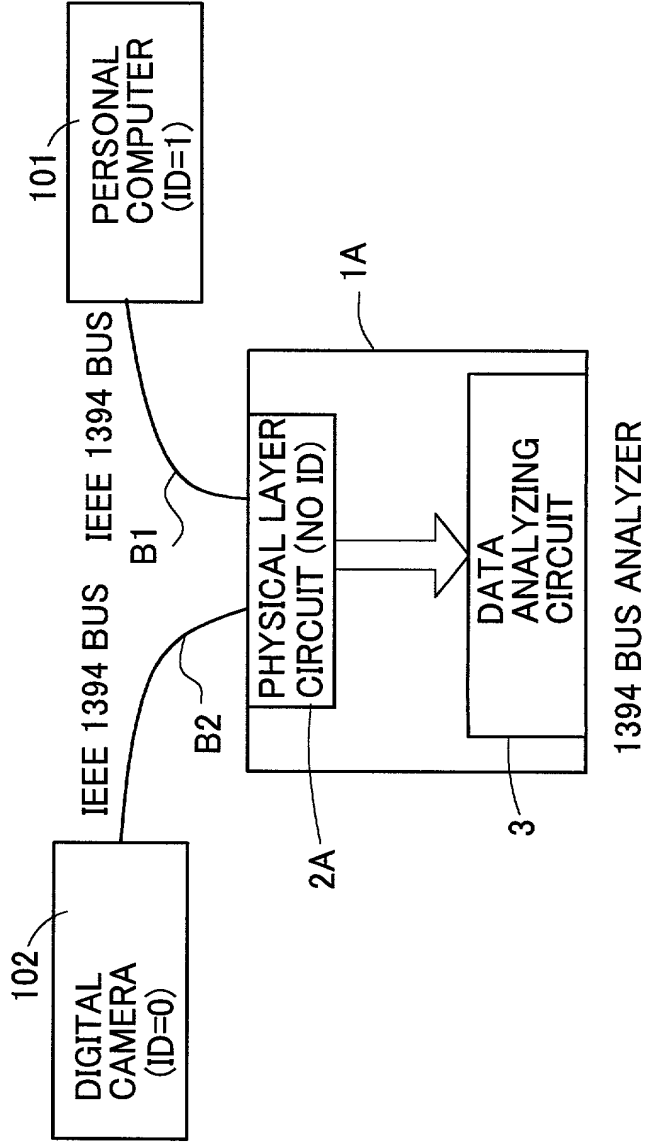


# FIG. 2

CONSTRUCTION IN WHICH CONVENTIONAL BUS ANALYZER IS CONNECTED TO IEEE 1394 BUS TO WHICH A NUMBER OF DEVICES ARE CONNECTED

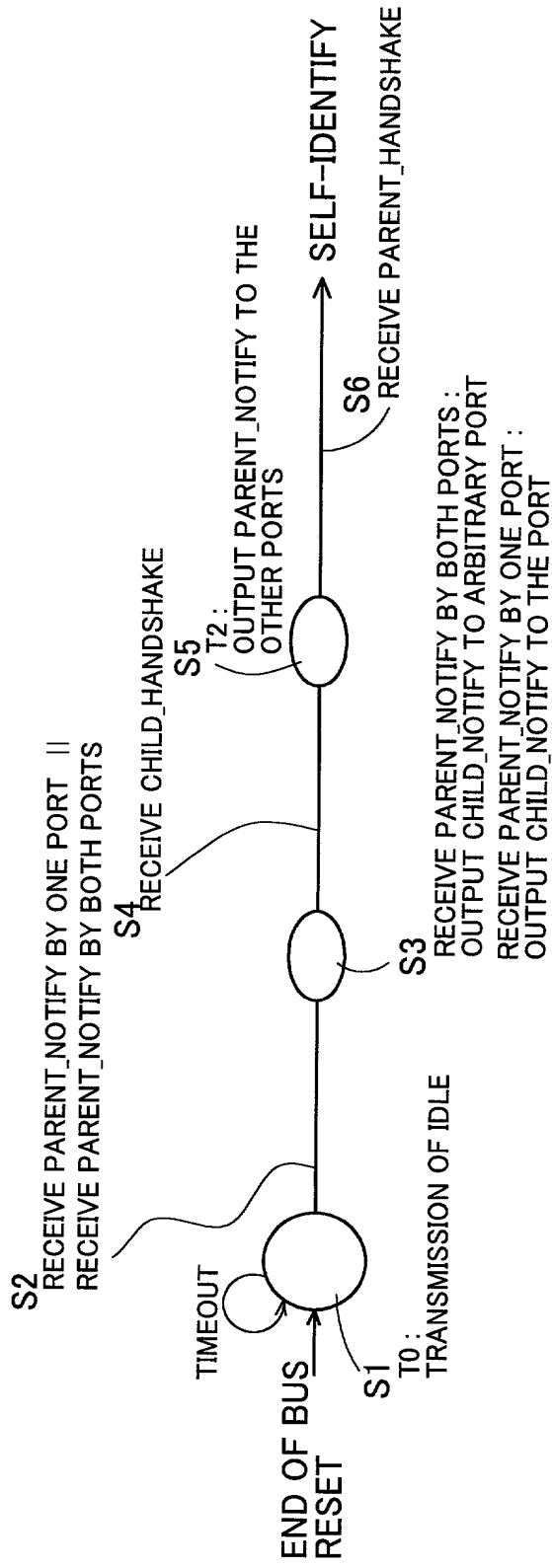


**FIG. 3** CONSTRUCTION IN WHICH BUS ANALYZER OF FIRST EMBODIMENT IS CONNECTED TO IEEE 1394 BUS



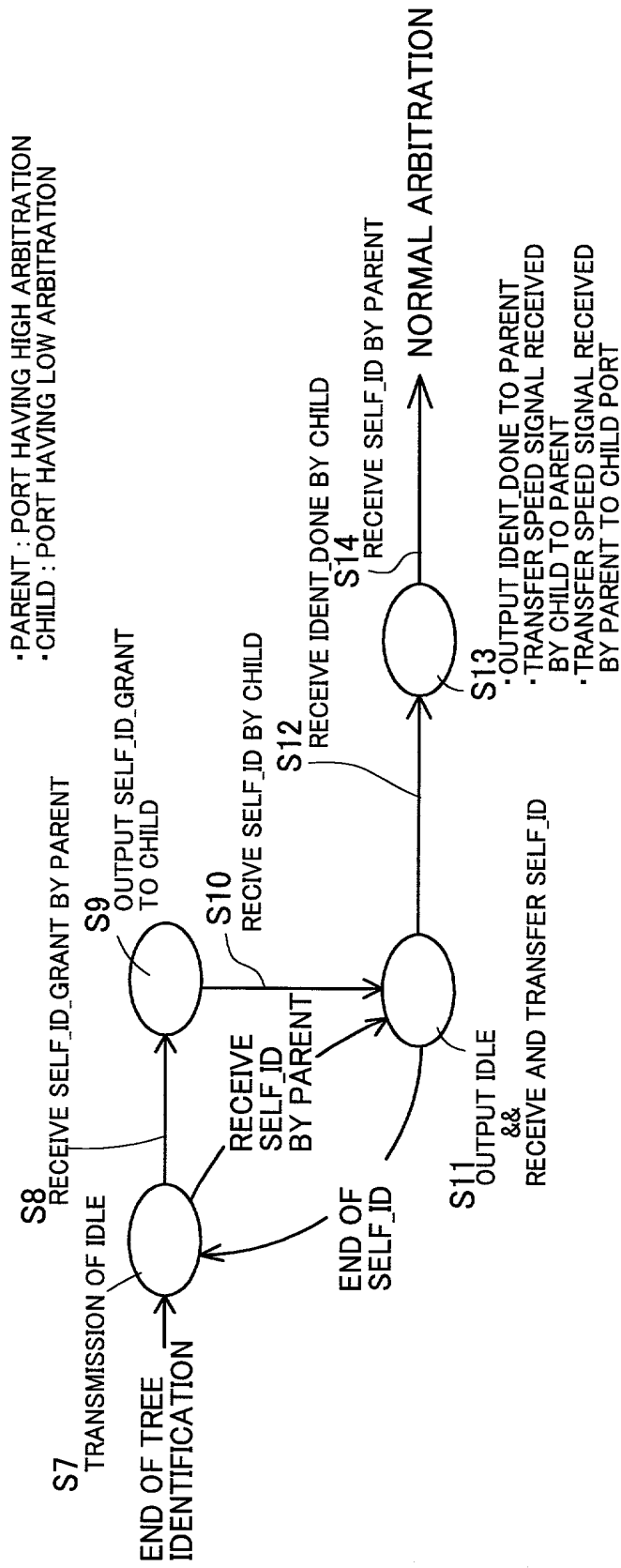
# FIG. 4

STATE TRANSITION DIAGRAM SHOWING TREE—IDENTIFYING OPERATION  
IN FIRST EMBODIMENT



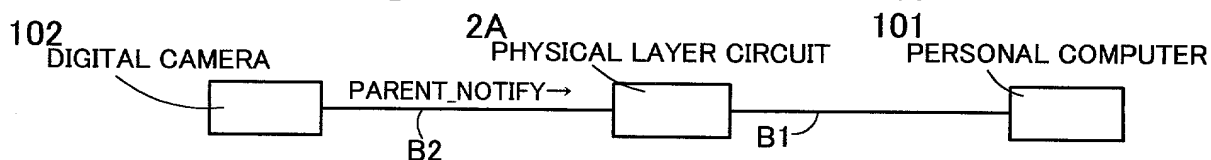
# FIG. 5

STATE TRANSITION DIAGRAM SHOWING SELF-IDENTIFYING OPERATION IN FIRST EMBODIMENT

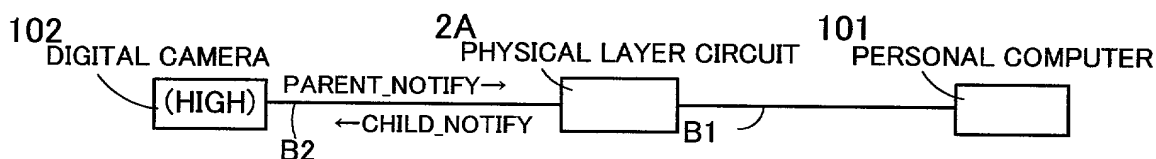


**FIG. 6** TREE-IDENTIFYING OPERATION IN FIRST EMBODIMENT  
(RECEIVE PARENT\_NOTIFY BY ONE OF PORTS)

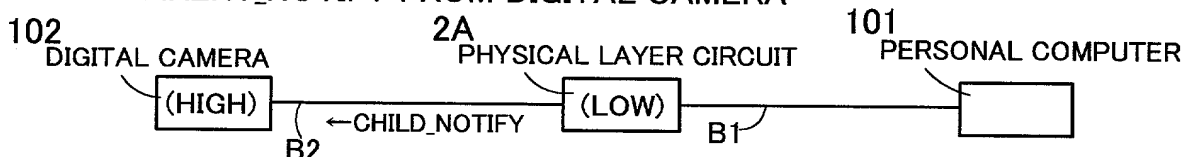
(P1) RECEIVE PARENT\_NOTIFY FROM DIGITAL CAMERA



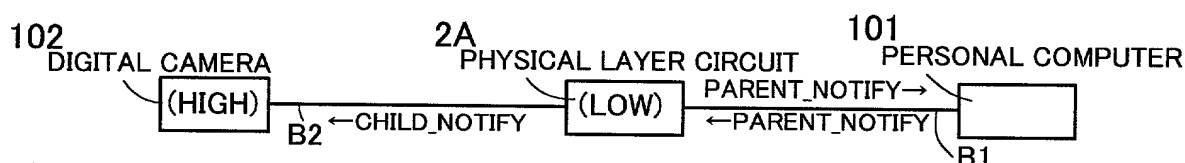
(P2) OUTPUT CHILD\_NOTIFY TO DIGITAL CAMERA



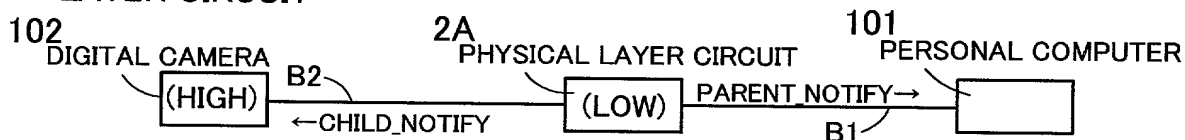
(P3) RECEIVE CHILD\_HANDSHAKE BY STOPPING OUTPUT OF PARENT\_NOTIFY FROM DIGITAL CAMERA



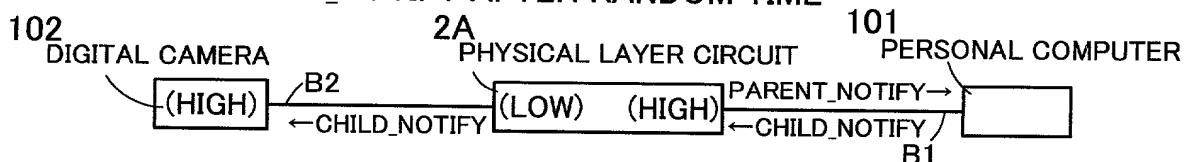
(P4) OUTPUT PARENT\_NOTIFY TO THE OTHER PORT RECEIVE ROOT\_CONTENTION WHEN PERSONAL COMPUTER ALSO OUTPUTS PARENT\_NOTIFY AT THIS TIME



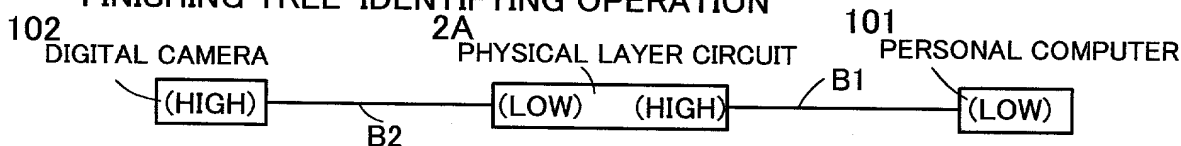
(P5) STOP OUTPUTTING PARENT\_NOTIFY FROM PERSONAL COMPUTER BUT CONTINUOUSLY OUTPUT PARENT\_NOTIFY FROM PHYSICAL LAYER CIRCUIT



(P6) RECEIVE PARENT\_HANDSHAKE WHEN PERSONAL COMPUTER OUTPUTS CHILD\_NOTIFY AFTER RANDOM TIME



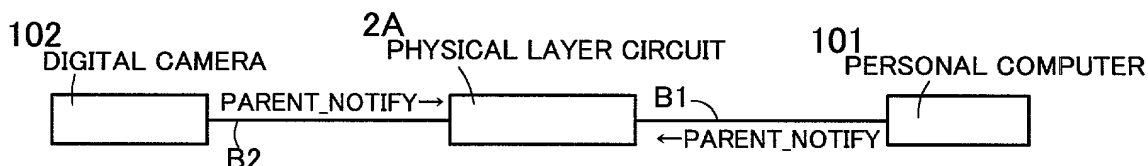
(P12) STOP OUTPUTTING SIGNALS FROM BOTH PORTS, THEREBY FINISHING TREE-IDENTIFYING OPERATION



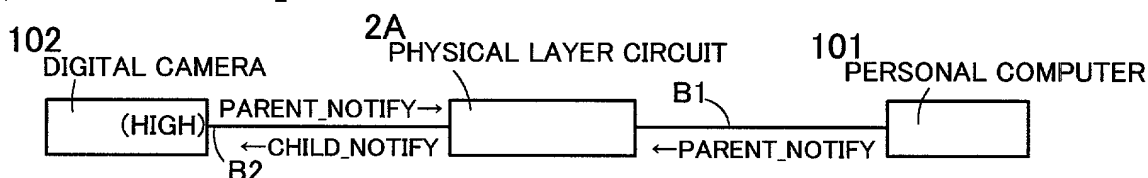
## FIG. 7

TREE-IDENTIFYING OPERATION IN FIRST EMBODIMENT  
(RECEIVE PARENT\_NOTIFY BY BOTH PORTS)

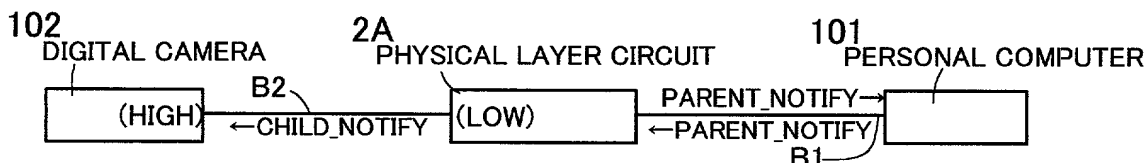
(P7) RECEIVE PARENT\_NOTIFY FROM BOTH DEVICES



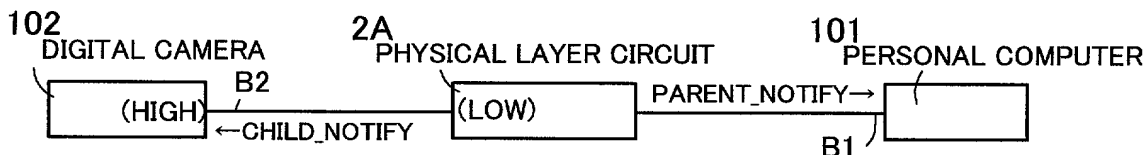
(P8) OUTPUT CHILD\_NOTIFY TO DIGITAL CAMERA



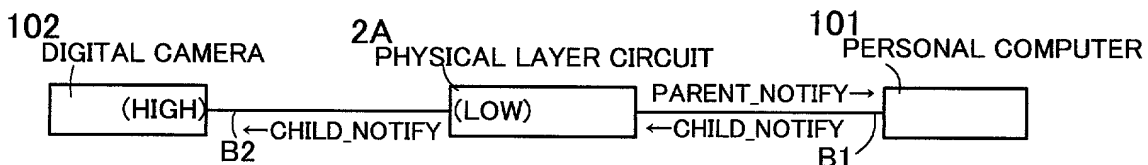
(P9) STOP OUTPUTTING PARENT\_NOTIFY FROM DIGITAL CAMERA TO THEREBY RECEIVE CHILD\_HANDSHAKE, AND OUTPUT PARENT\_NOTIFY TO PERSONAL COMPUTER.  
RECEIVE ROOT\_CONTENTION WHEN PERSONAL COMPUTER ALSO OUTPUTS PARENT\_NOTIFY AT THIS TIME.



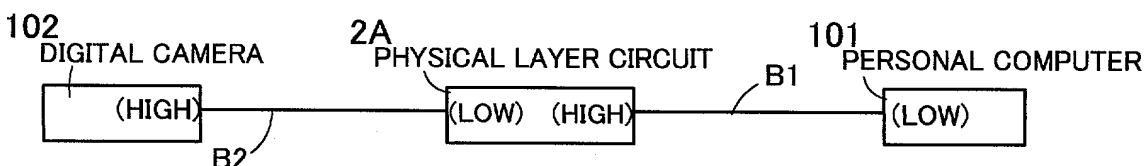
(P10) STOP OUTPUTTING PARENT\_NOTIFY FROM PERSONAL COMPUTER BUT CONTINUOUSLY OUTPUT PARENT\_NOTIFY FROM PHYSICAL LAYER CIRCUIT



(P11) OUTPUT CHILD\_NOTIFY FROM PERSONAL COMPUTER AFTER RANDOM TIME, THEREBY RECEIVING PARENT\_HANDSHAKE



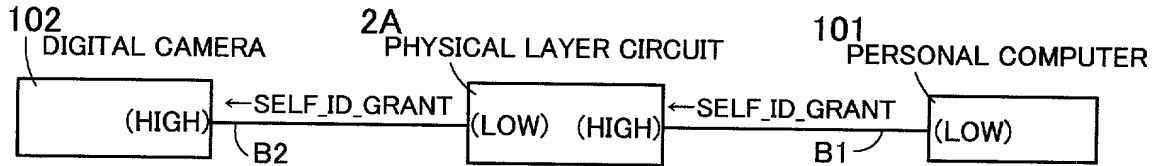
(P12) FINISH TREE-IDENTIFYING OPERATION



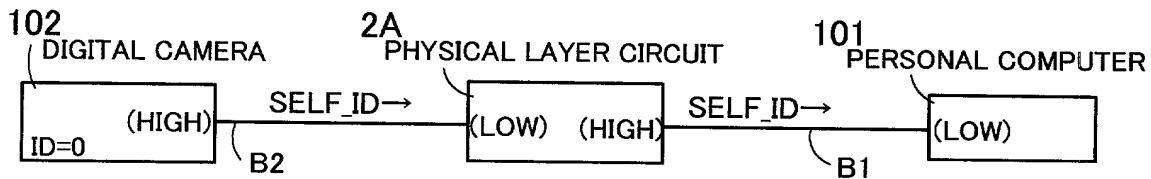
# FIG. 8

## SELF-IDENTIFYING OPERATION IN FIRST EMBODIMENT

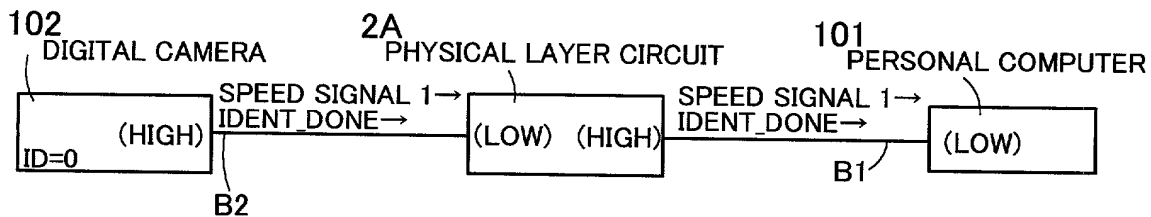
(P13) RECEIVE SELF\_ID\_GRANT FROM PERSONAL COMPUTER AND TRANSFER IT TO DIGITAL CAMERA



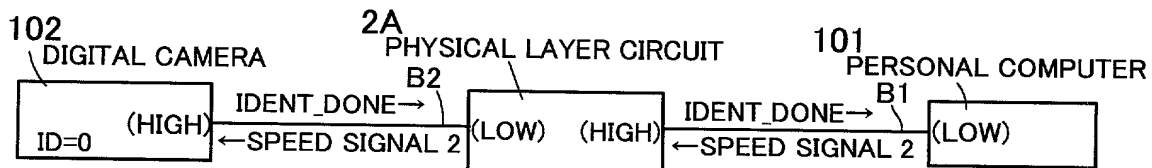
(P14) RECEIVE SELF\_ID PACKET FROM DIGITAL CAMERA AND TRANSFER IT TO PERSONAL COMPUTER



(P15) RECEIVE IDENT\_DONE PACKET AND SPEED SIGNAL FROM DIGITAL CAMERA AND TRANSFER THEM TO PERSONAL COMPUTER



(P16) RECEIVE SPEED SIGNAL FROM PERSONAL COMPUTER AND TRANSFER IT TO DIGITAL CAMERA



(P17) RECEIVE SELF\_ID PACKET FROM PERSONAL COMPUTER AND FINISH SELF-IDENTIFYING OPERATION

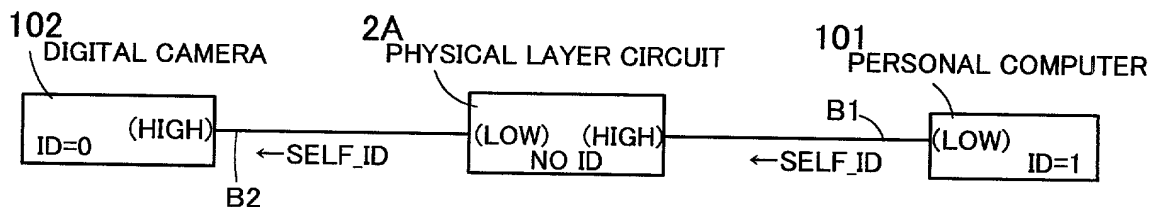




FIG. 9

FIRST MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT

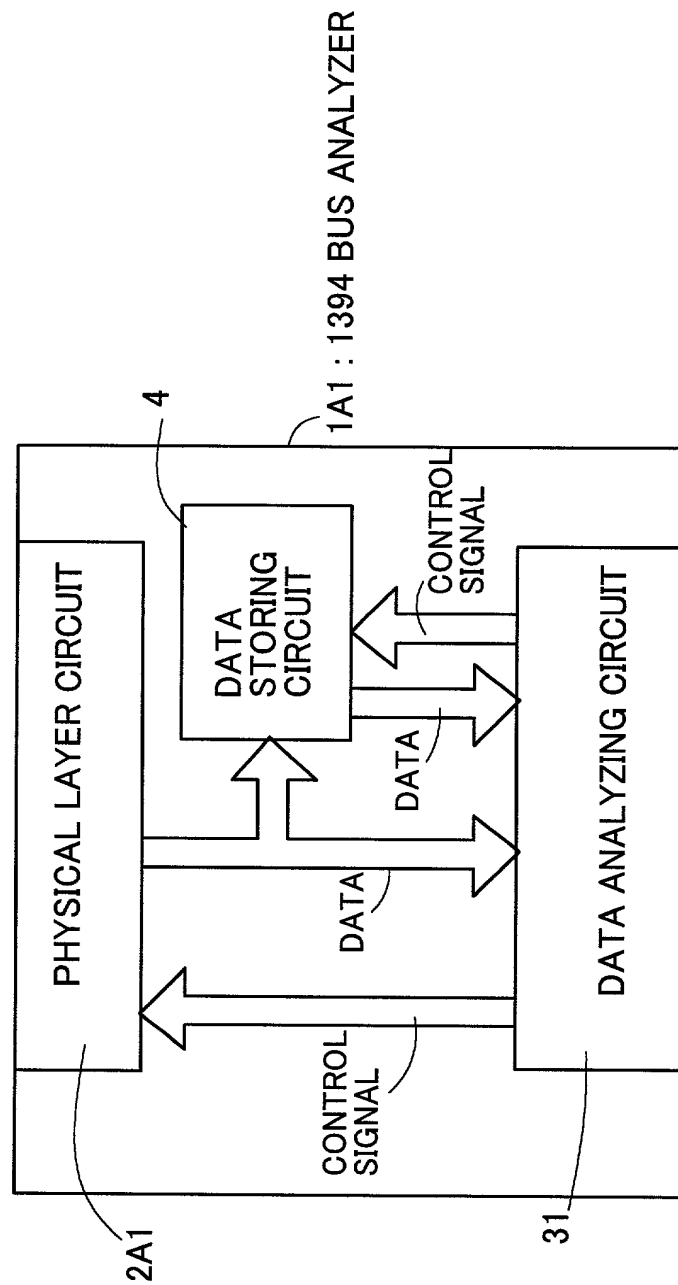


FIG. 10

SECOND MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT

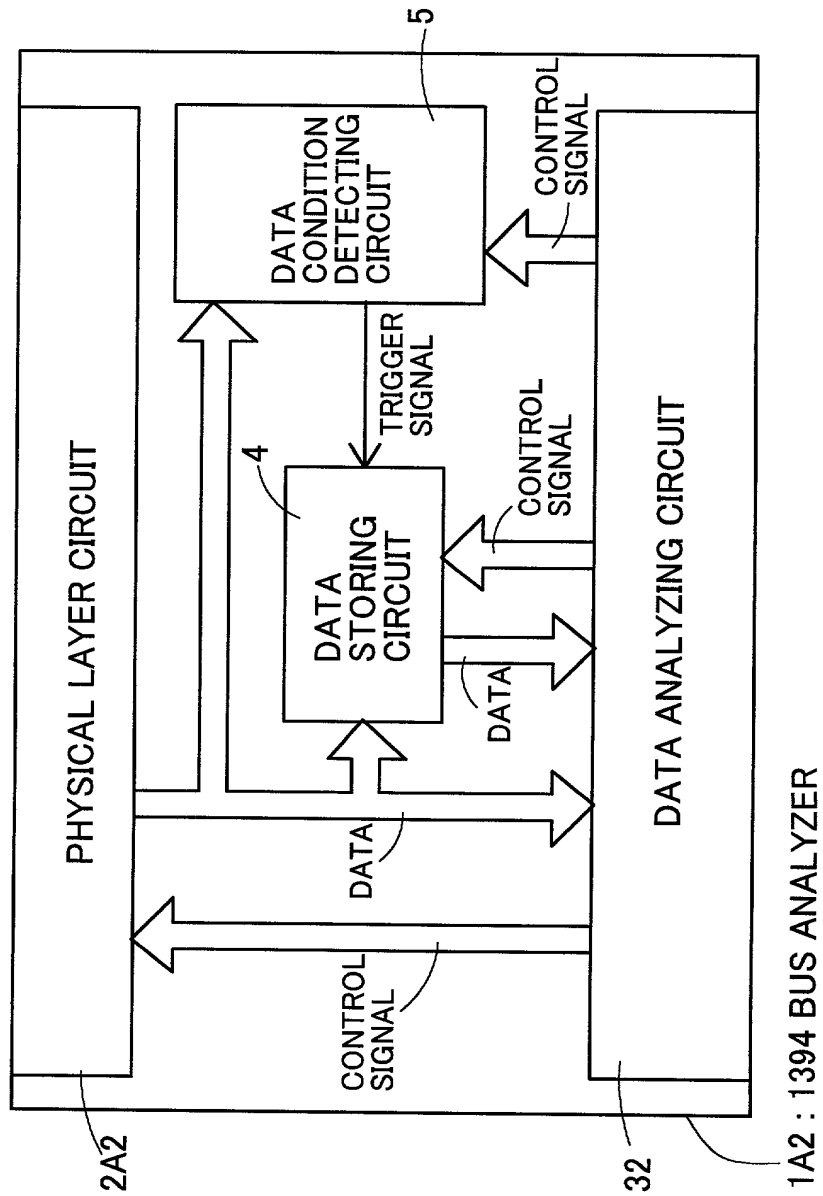


FIG. 11

THIRD MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT

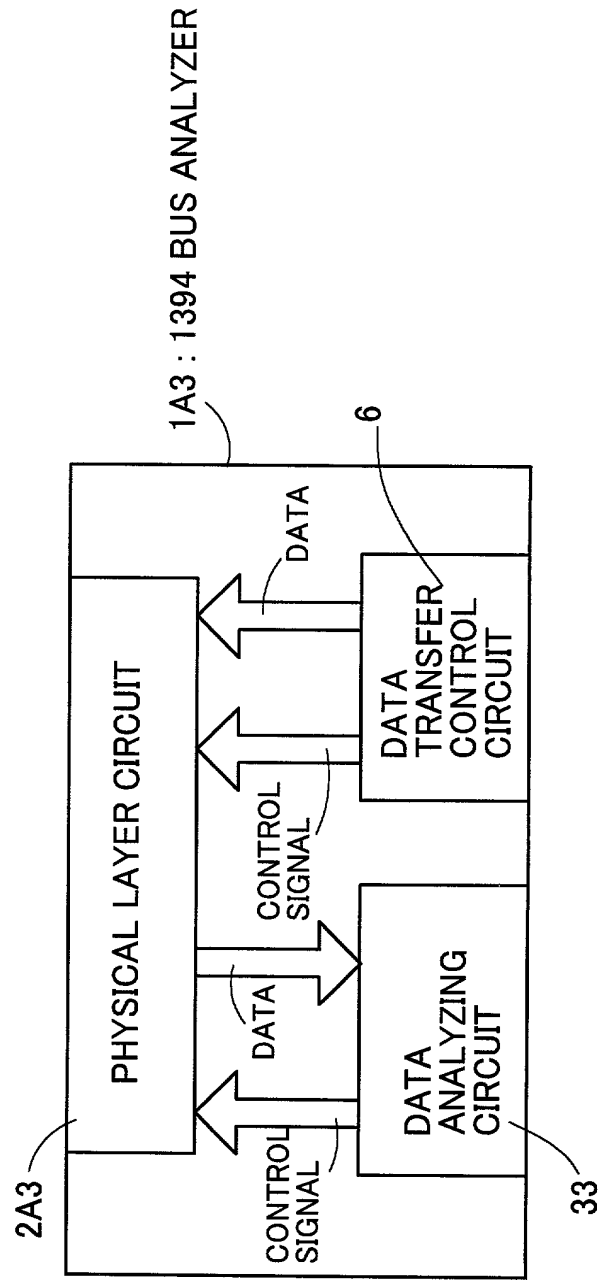
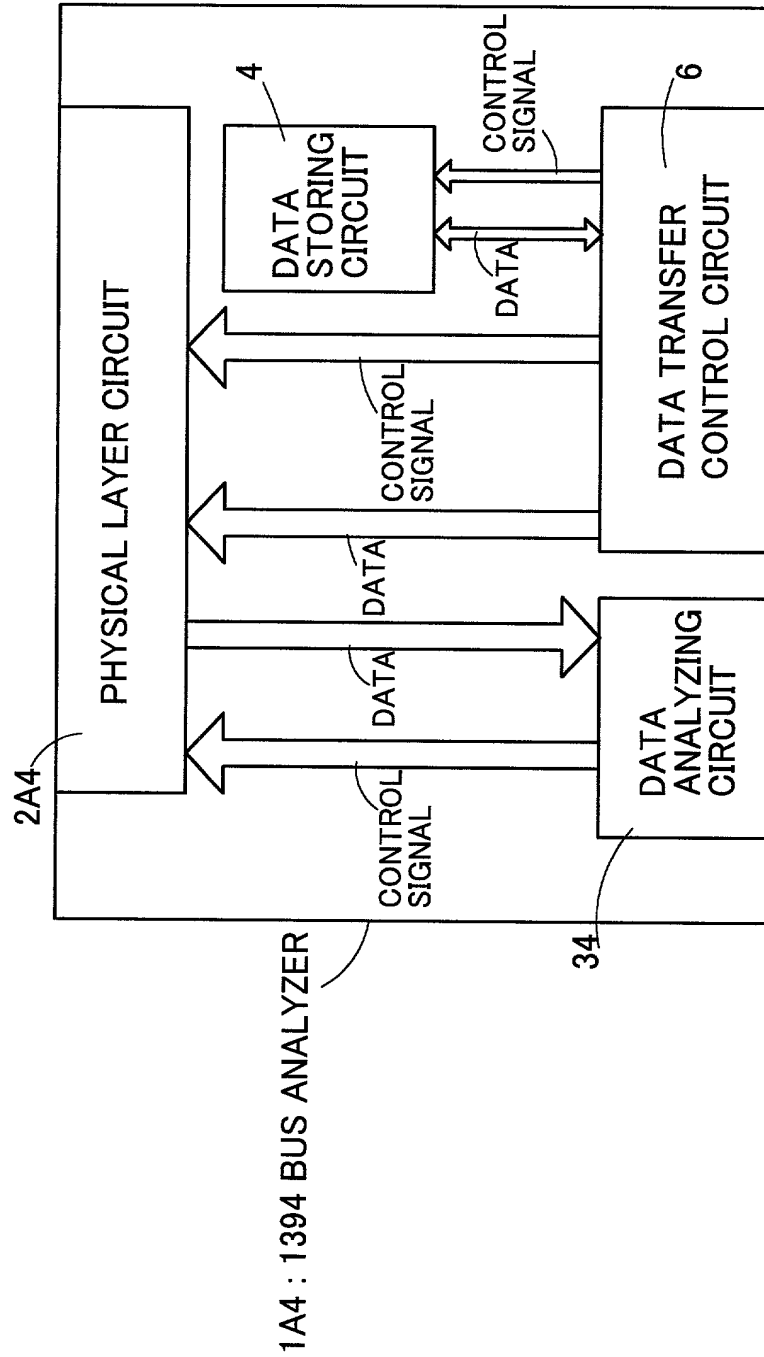


FIG. 12

FOURTH MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT



# FIG. 13

FIFTH MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT

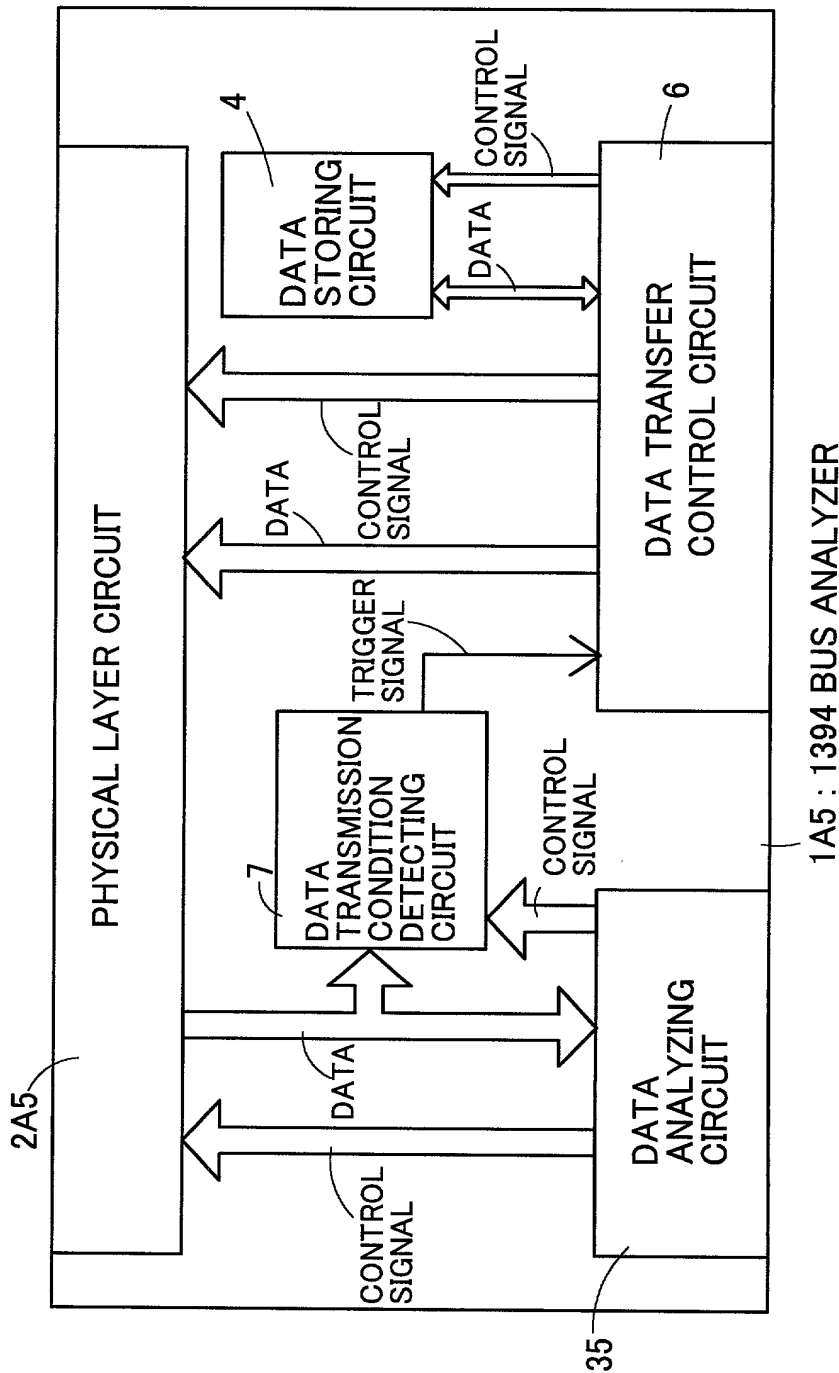


FIG. 14 SIXTH MODIFICATION OF BUS ANALYZER IN FIRST EMBODIMENT

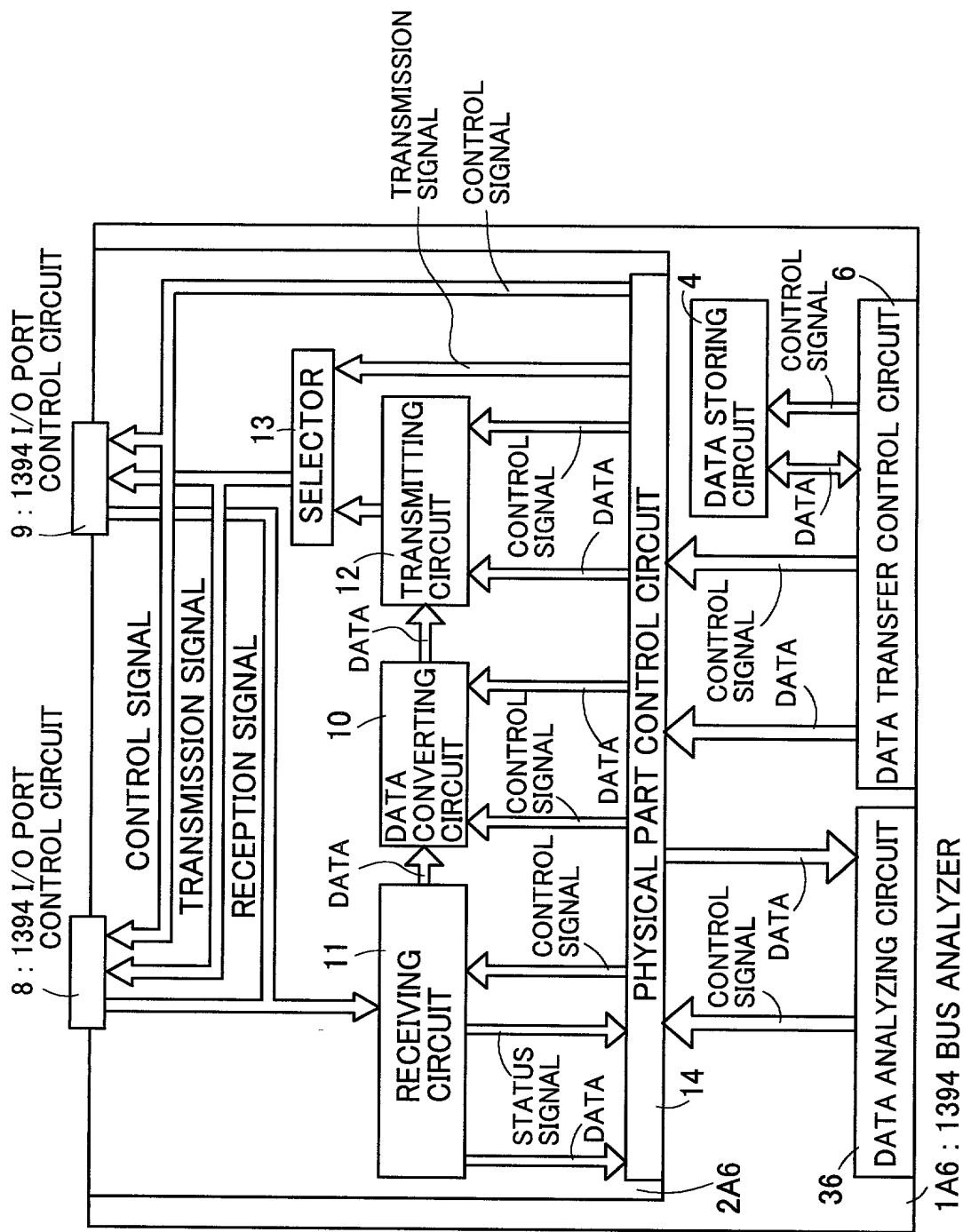
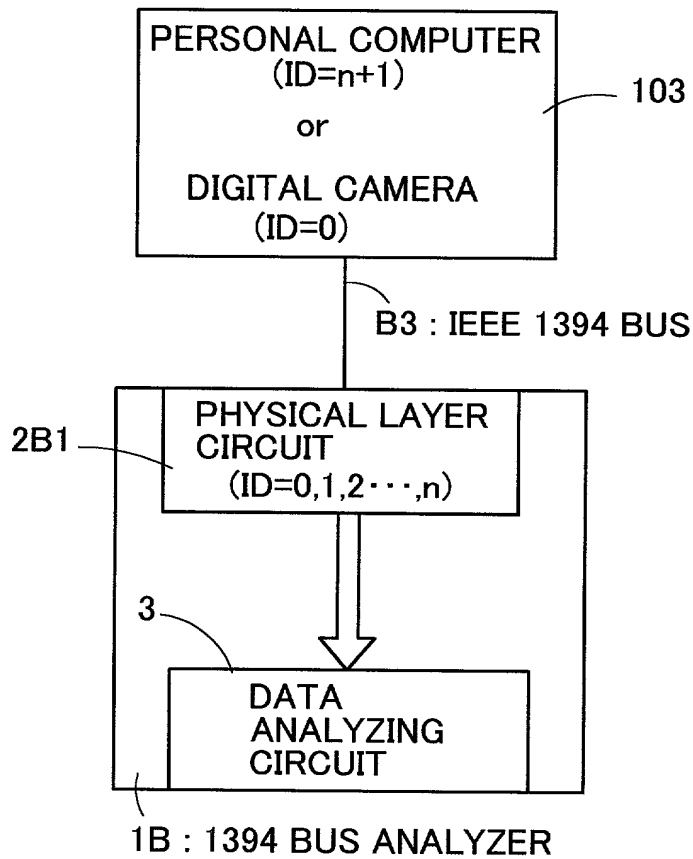
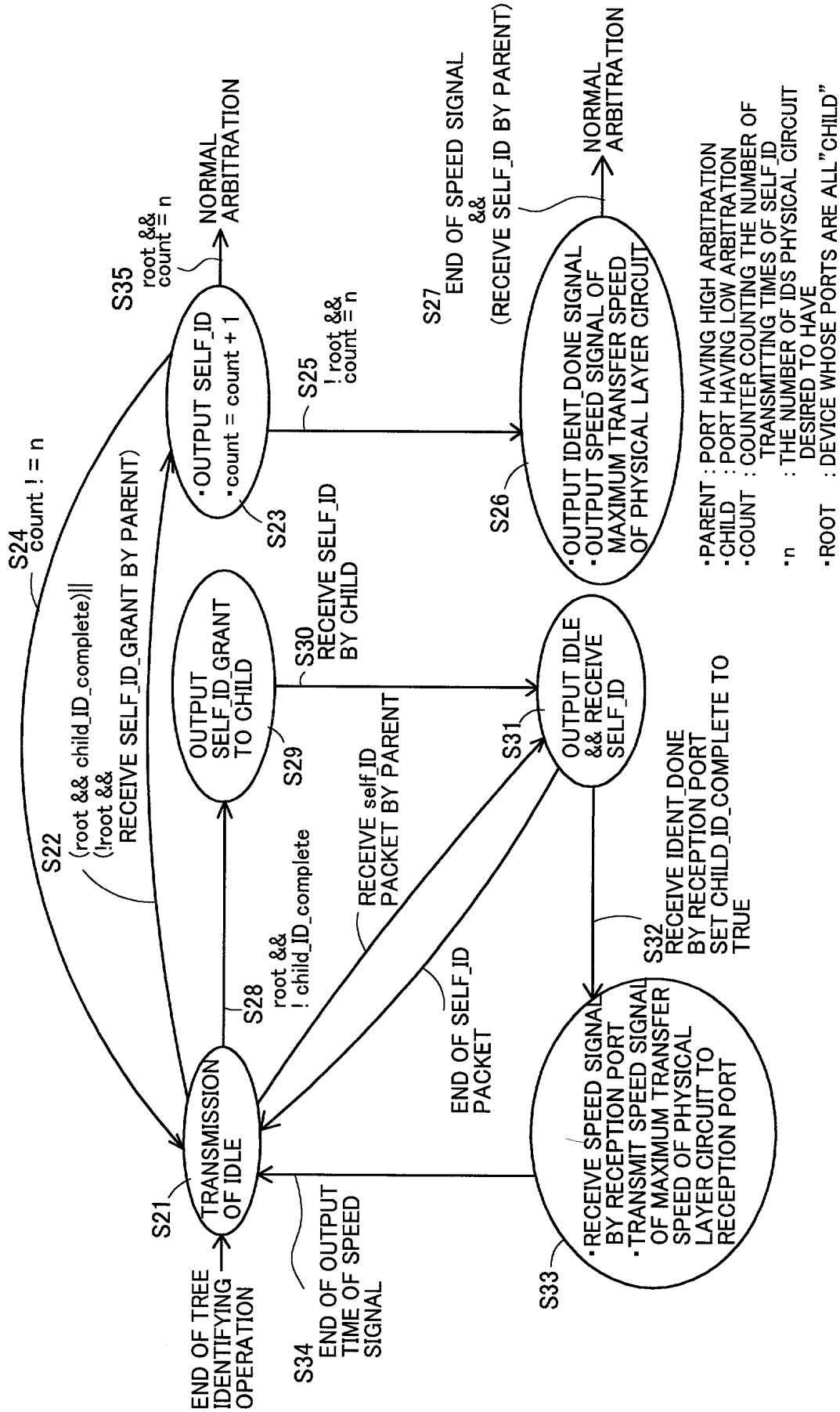


FIG. 15

FIRST CONSTRUCTION EXANPLE OF IEEE 1394 BUS TO WHICH  
BUS ANALYZER OF SECOND EMBODIMENT IS CONNECTED



**FIG. 16** STATE TRANSITION DIAGRAM SHOWING SELF-IDENTIFYING OPERATION IN FIRST CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT

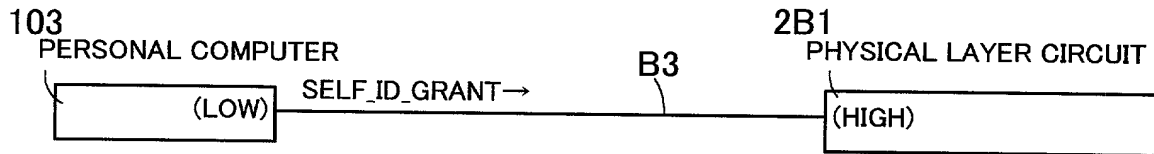




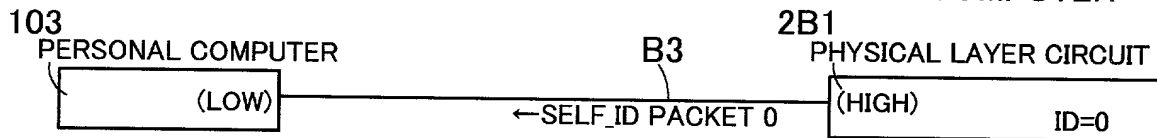
# FIG. 17

SELF-IDENTIFYING OPERATION IN FIRST CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE CONNECTED ON THE OTHER SIDE HAS HIGH ARBITRATION)

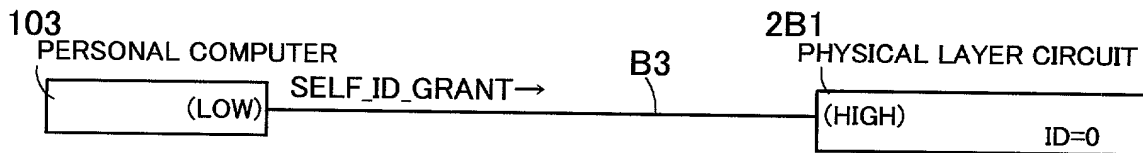
(P21) RECEIVE SELF\_ID\_GRANT FROM PERSONAL COMPUTER



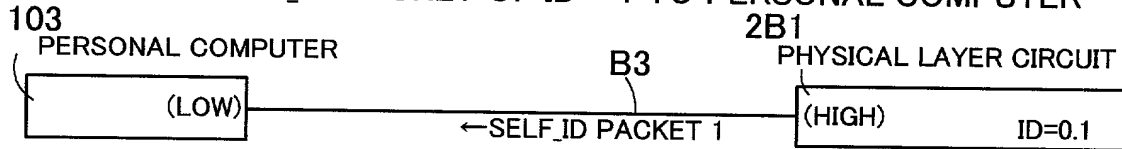
(P22) OUTPUT SELF\_ID PACKET OF ID = 0 TO PERSONAL COMPUTER



(P23) RECEIVE SELF\_ID\_GRANT FROM PERSONAL COMPUTER

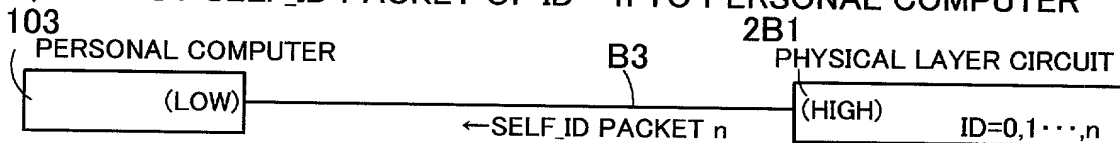


(P24) OUTPUT SELF\_ID PACKET OF ID = 1 TO PERSONAL COMPUTER

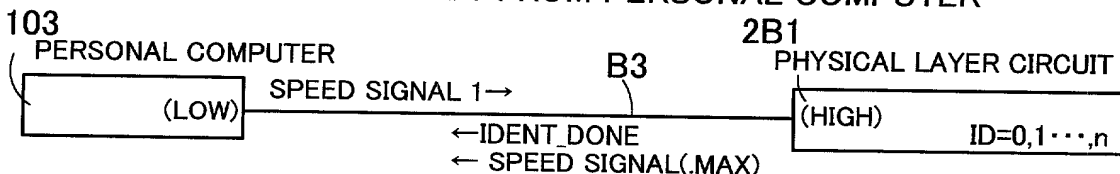


⋮

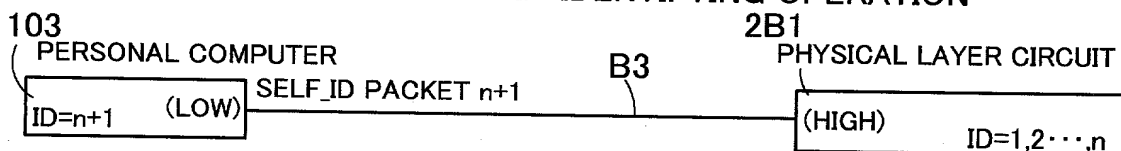
(P25) OUTPUT SELF\_ID PACKET OF ID = n TO PERSONAL COMPUTER



(P26) OUTPUT IDENT\_DONE AND SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF PHYSICAL LAYER CIRCUIT TO PERSONAL COMPUTER AND RECEIVE SPEED SIGNAL 1 FROM PERSONAL COMPUTER



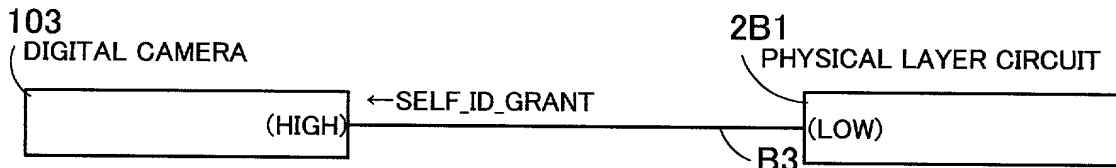
(P27) RECEIVE SELF\_ID PACKET OF ID = (N+1) FROM PERSONAL COMPUTER AND FINISH SELF-IDENTIFYING OPERATION



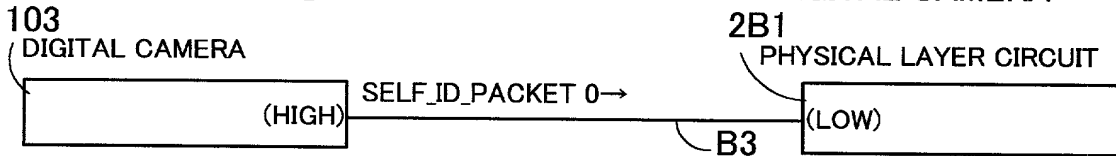
# FIG. 18

SELF-IDENTIFYING OPERATION IN FIRST CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE ARBITRATION OF DEVICE CONNECTED ON THE OTHER SIDE IS LOW)

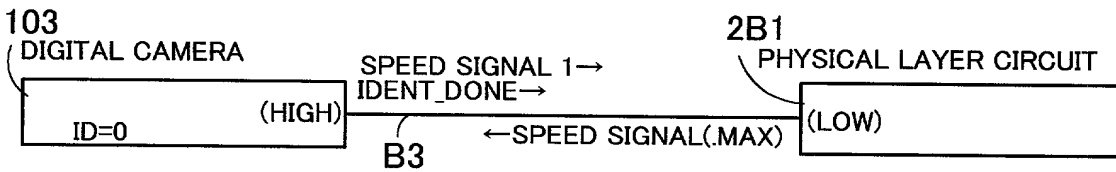
(P28) OUTPUT SELF\_ID\_GRANT TO DIGITAL CAMERA



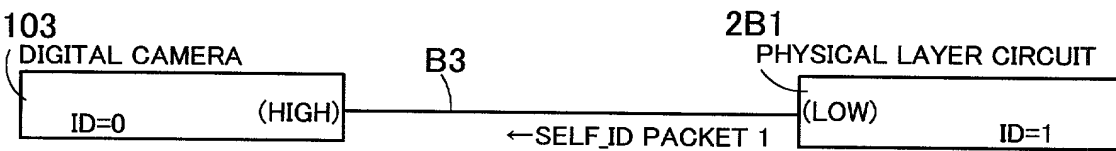
(P29) RECEIVE SELF\_ID PACKET OF ID = 0 FROM DIGITAL CAMERA



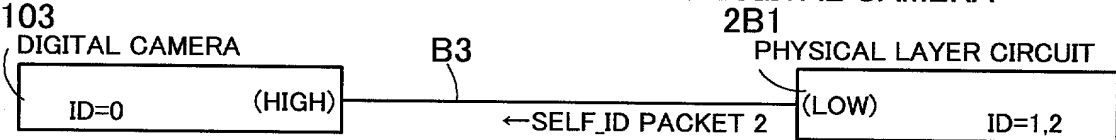
(P30) RECEIVE IDENT\_DONE AND SPEED SIGNAL FROM DIGITAL CAMERA AND OUTPUT MAXIMUM SPEED SIGNAL TO DIGITAL CAMERA



(P31) OUTPUT SELF\_ID PACKET OF ID = 1 TO DIGITAL CAMERA

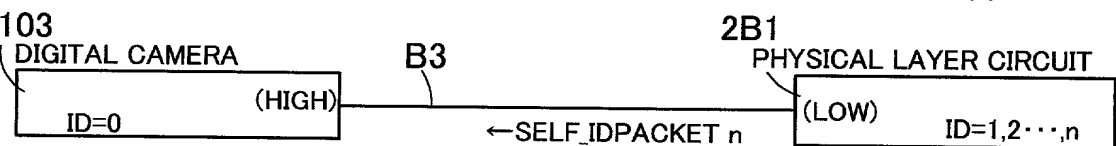


(P32) OUTPUT SELF\_ID PACKET OF ID = 2 TO DIGITAL CAMERA

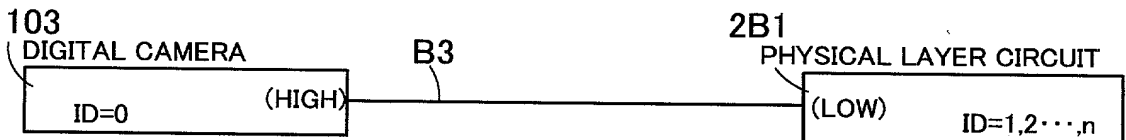


⋮

(P33) OUTPUT SELF\_ID PACKET OF ID = n TO DIGITAL CAMERA



(P34) STOP OUTPUTTING SELF\_ID PACKET AND FINISH SELF-IDENTIFYING OPERATION



# FIG. 19

SECOND CONSTRUCTION EXAMPLE OF IEEE 1394 BUS TO WHICH BUS ANALYZER OF SECOND EMBODIMENT IS CONNECTED

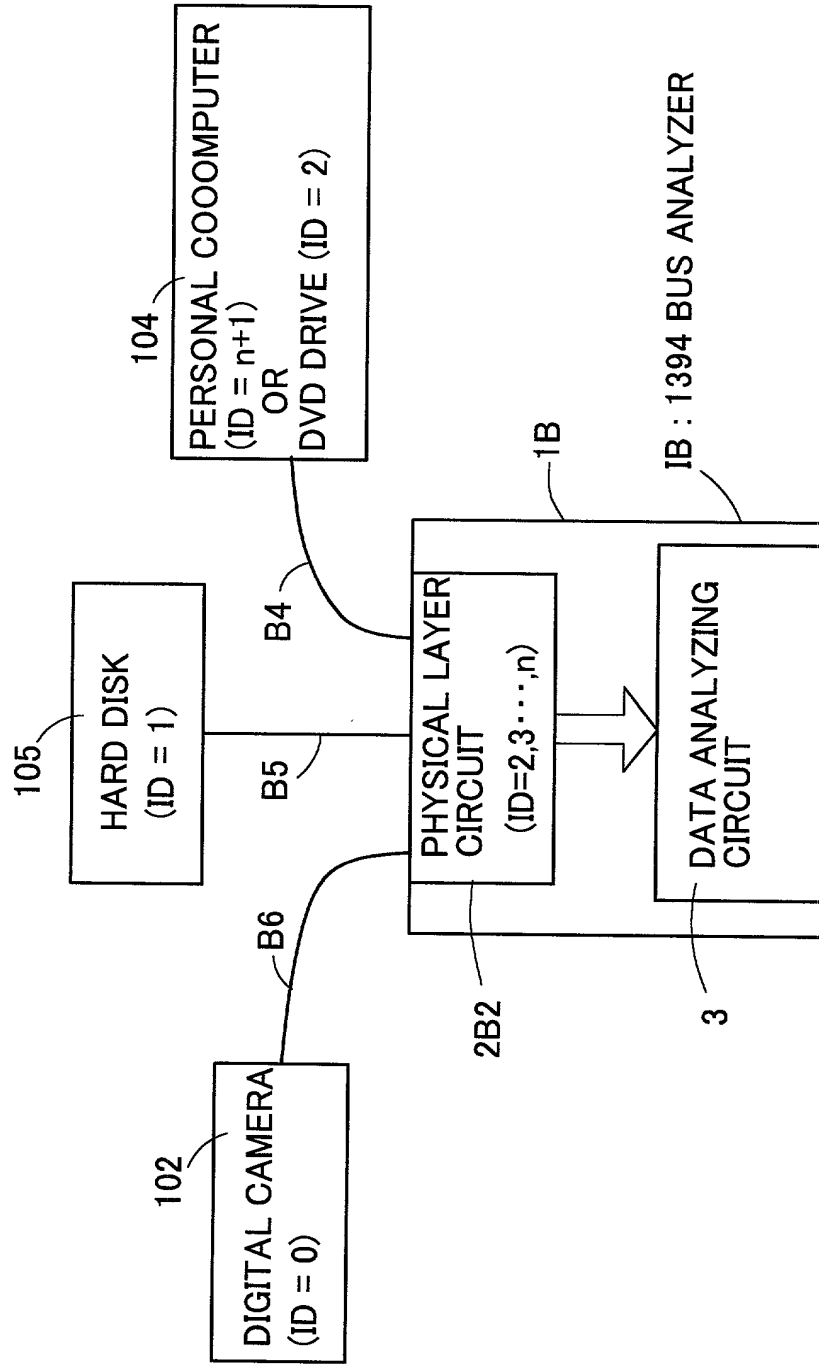
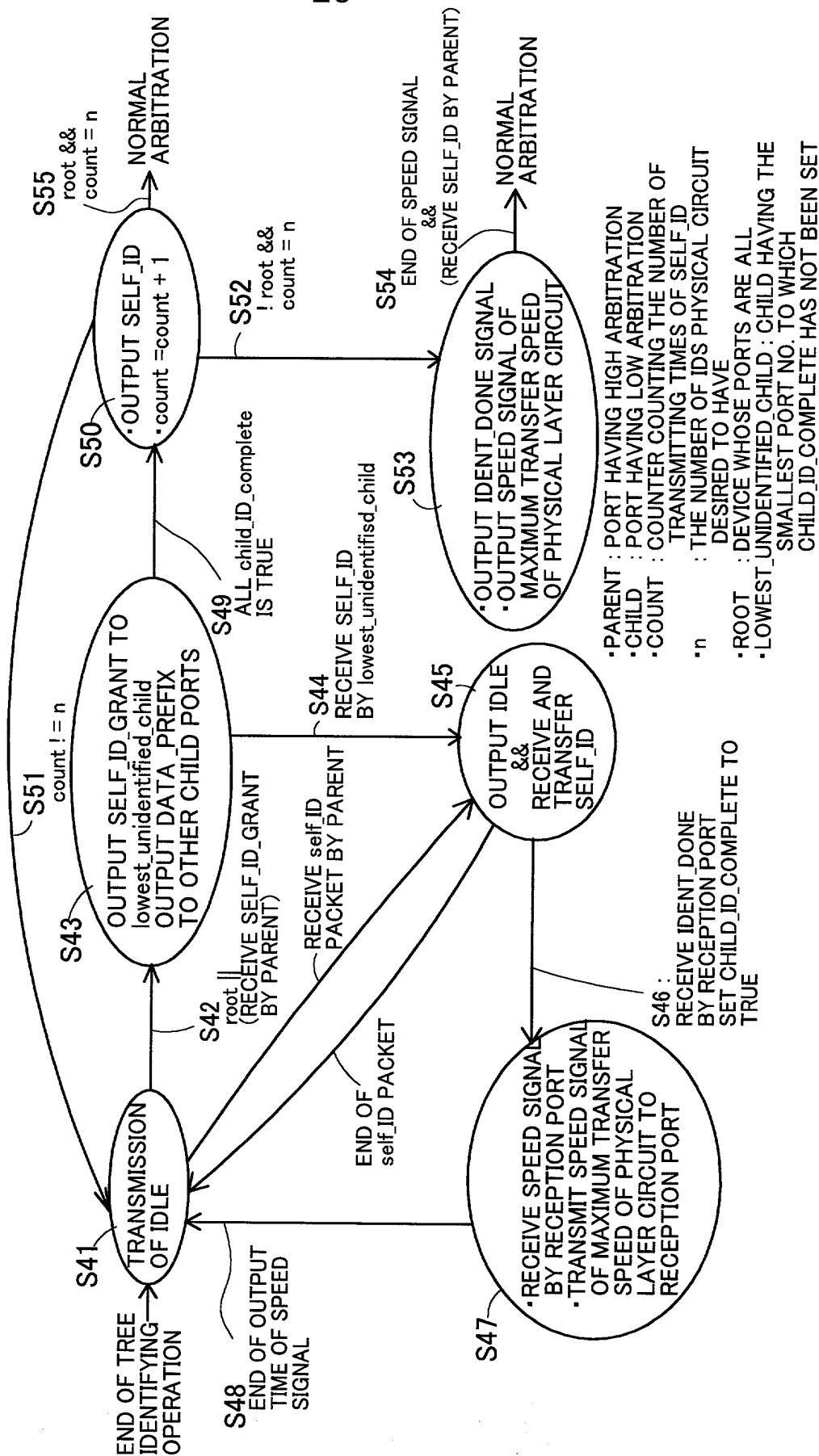


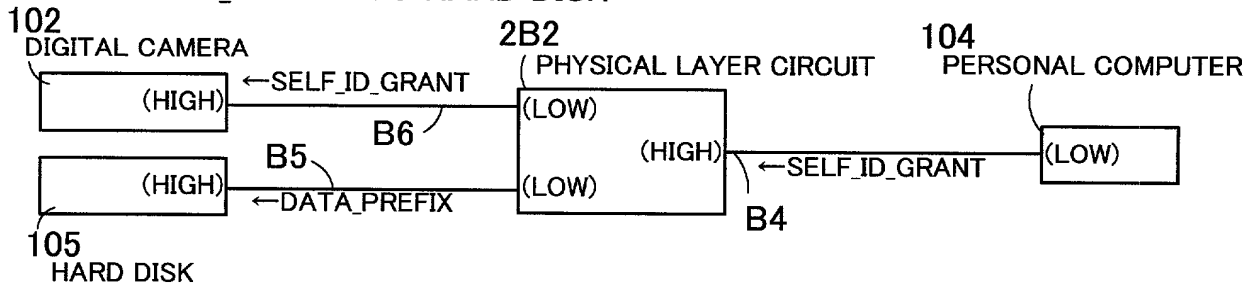
FIG. 20



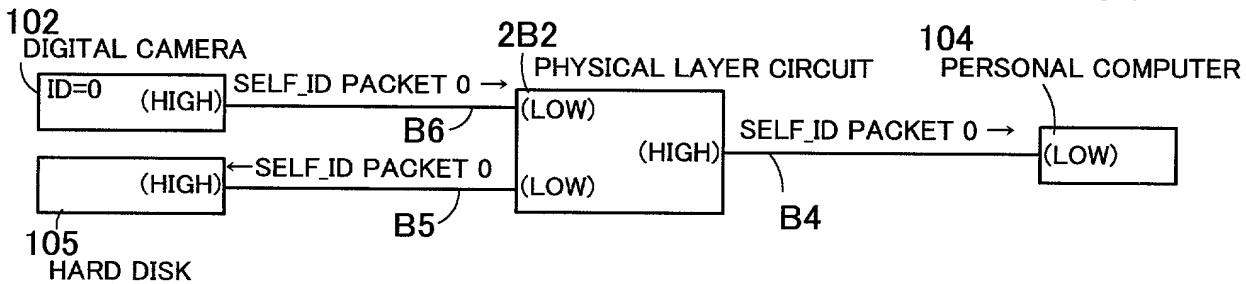
# FIG. 21

SELF-IDENTIFYING OPERATION (1) IN SECOND CONSTRUCTION  
EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE  
CONNECTED ON THE OTHER SIDE HAS DEVICE HAVING HIGH ARBITRATION)

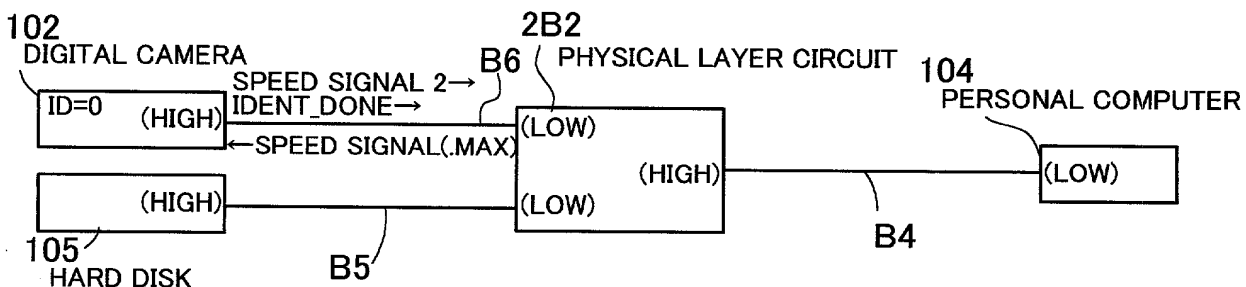
(P41) RECEIVE SELF\_ID\_GRANT FROM PERSONAL COMPUTER, OUTPUT  
SELF\_ID\_GRANT TO DIGITAL CAMERA AND OUTPUT  
DATA\_PREFIX TO HARD DISK



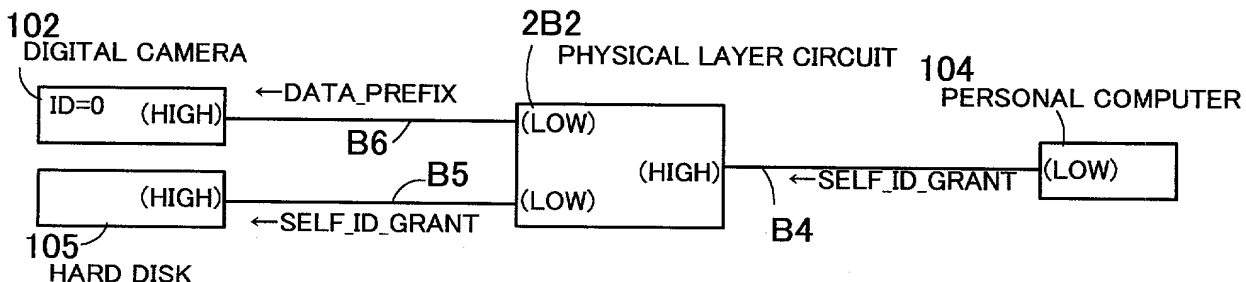
(P42) RECEIVE SELF\_ID PACKET OF ID = 0 FROM DIGITAL CAMERA  
AND OUTPUT IT TO PERSONAL COMPUTER AND HARD DISK



(P43) RECEIVE IDENT DONE AND SPEED SIGNAL FROM DIGITAL CAMERA  
AND OUTPUT SPEED SIGNAL OF MAXIMUM TRANSFER SPEED  
OF PHYSICAL LAYER CIRCUIT TO DIGITAL CAMERA



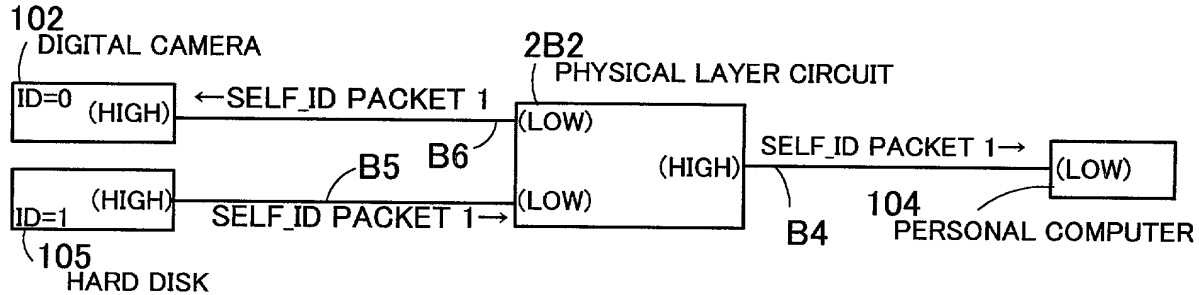
(P44) RECEIVE SELF\_ID\_GRANT FROM PERSONAL COMPUTER, OUTPUT  
SELF\_ID\_GRANT TO HARD DISK AND OUTPUT DATA\_PREFIX  
TO DIGITAL CAMERA



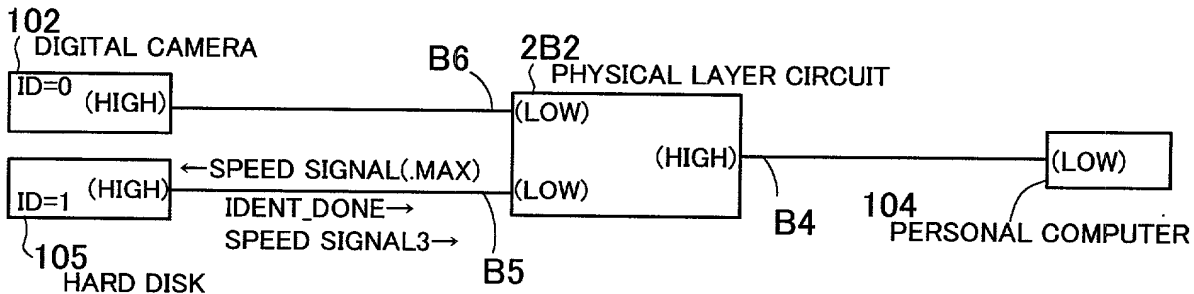
# FIG. 22

SELF-IDENTIFYING OPERATION (2) IN SECOND CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE CONNECTED ON THE OTHER SIDE HAS DEVICE HAVING HIGH ARBITRATION)

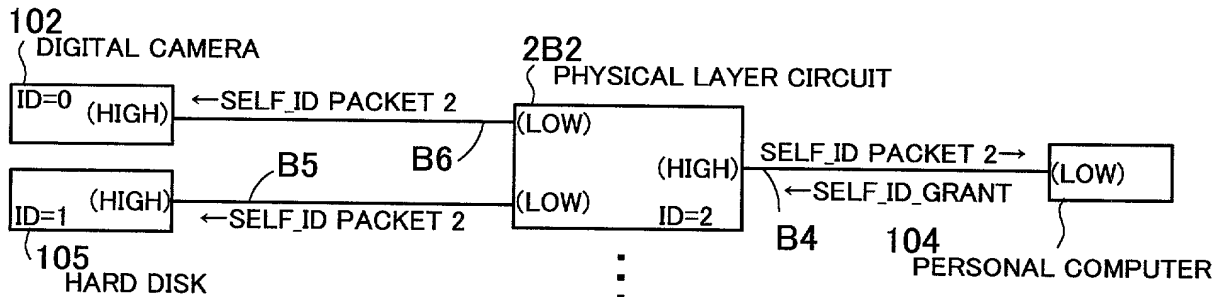
(P45) RECEIVE SELF\_ID PACKET OF ID = 1 FROM HARD DISK AND TRANSFER IT TO PERSONAL COMPUTER AND DIGITAL CAMERA



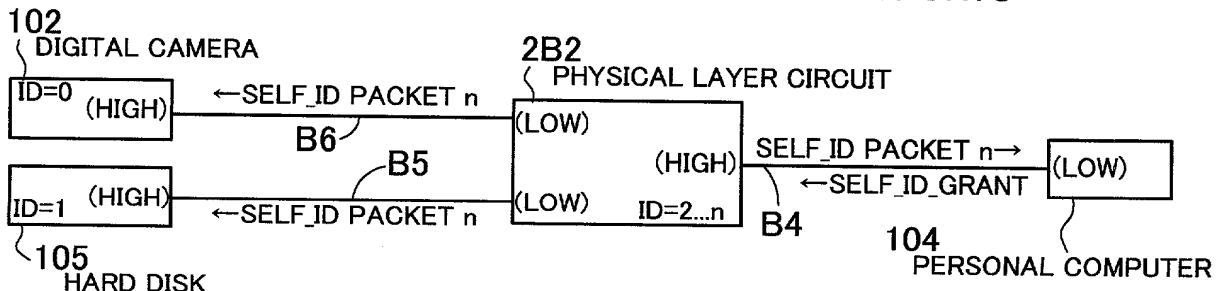
(P46) RECEIVE IDENT\_DONE AND SPEED SIGNAL FROM HARD DISK AND OUTPUT SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF PHYSICAL LAYER CIRCUIT TO HARD DISK



(P47) RECEIVE SELF\_ID GRANT FROM PERSONAL COMPUTER AND TRANSMIT SELF\_ID PACKET OF ID = 2 TO ALL PORTS



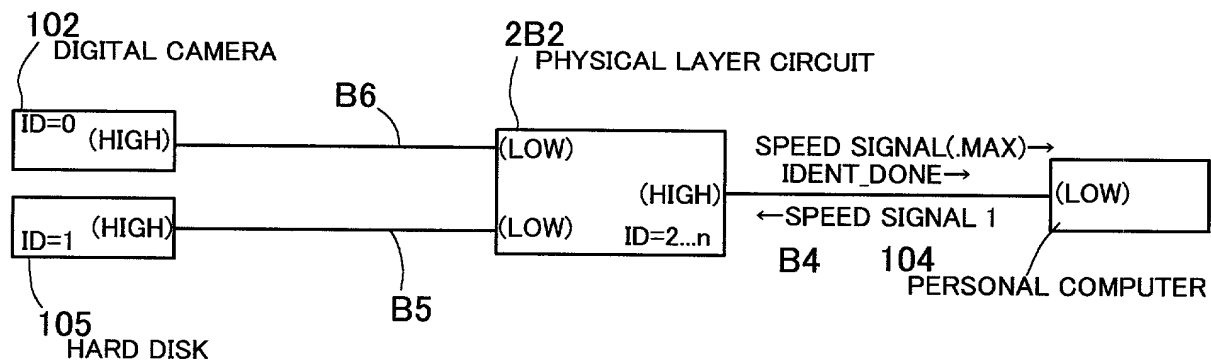
(P48) RECEIVE SELF\_ID GRANT FROM PERSONAL COMPUTER AND TRANSMIT SELF\_ID PACKET OF ID = n TO ALL PORTS



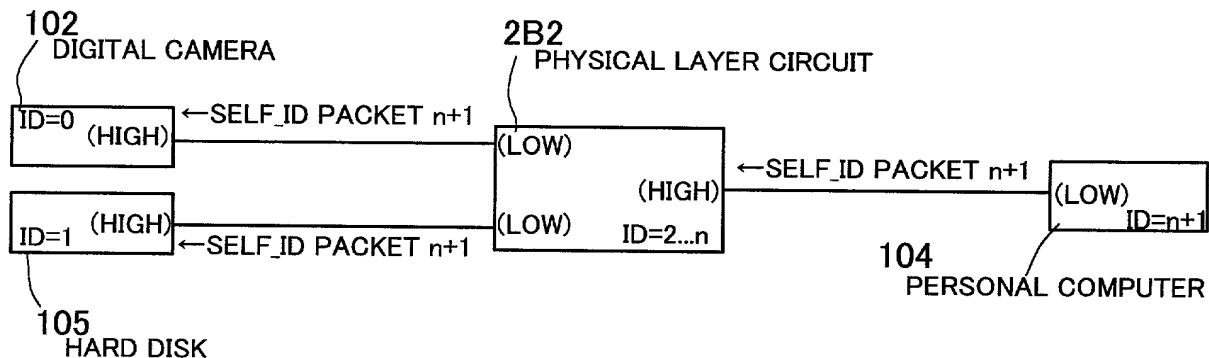
## FIG. 23

SELF-IDENTIFYING OPERATION (3) IN SECOND CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE CONNECTED ON THE OTHER SIDE HAS DEVICE HAVING HIGH ARBITRATION)

(P49) OUTPUT IDENT DONE AND SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF PHYSICAL LAYER CIRCUIT TO PERSONAL COMPUTER AFTER TRANSMITTING PACKET AND RECEIVE SPEED SIGNAL FROM PERSONAL COMPUTER



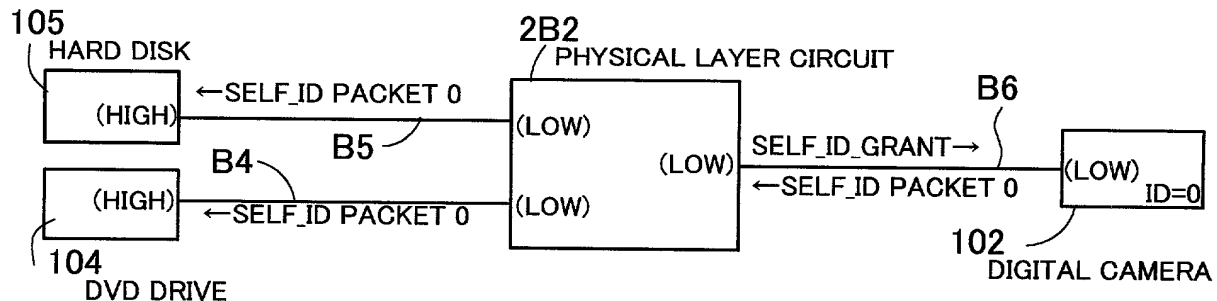
(P50) RECEIVE SELF\_ID PACKET OF ID = (n+1) FROM PERSONAL COMPUTER, FINISH SELF-IDENTIFYING OPERATION AND TRANSFER PACKET TO DIGITAL CAMERA AND HARD DISK



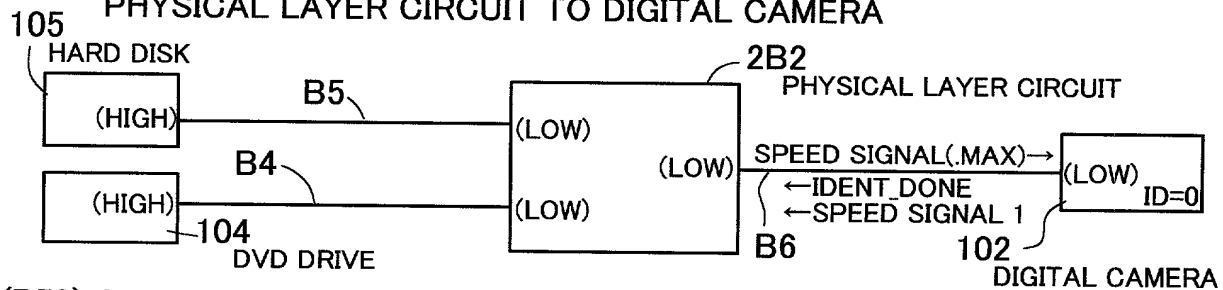
## FIG. 24

SELF-IDENTIFYING OPERATION (1) IN SECOND CONSTRUCTION  
EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE  
CONNECTED ON THE OTHER SIDE DOES NOT HAVE DEVICE HAVING  
HIGH ARBITRATION)

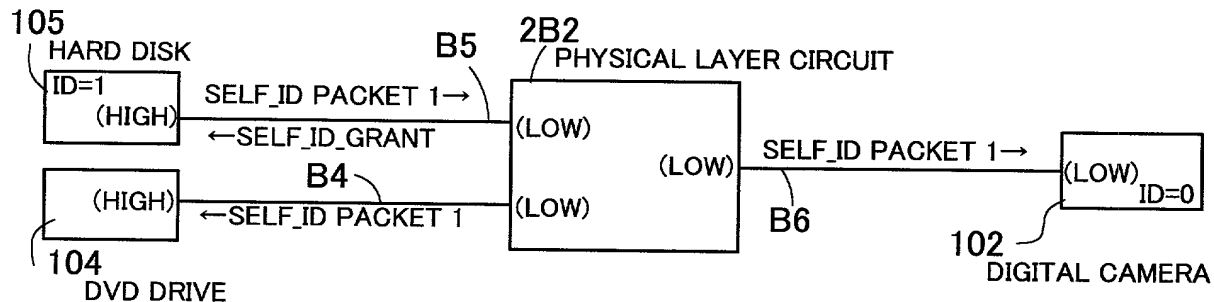
(P51) OUTPUT SELF\_ID\_GRANT TO DIGITAL CAMERA, RECEIVE SELF\_ID  
PACKET FROM DIGITAL CAMERA, AND TRANSFER IT TO HARD DISK  
AND DVD DRIVE



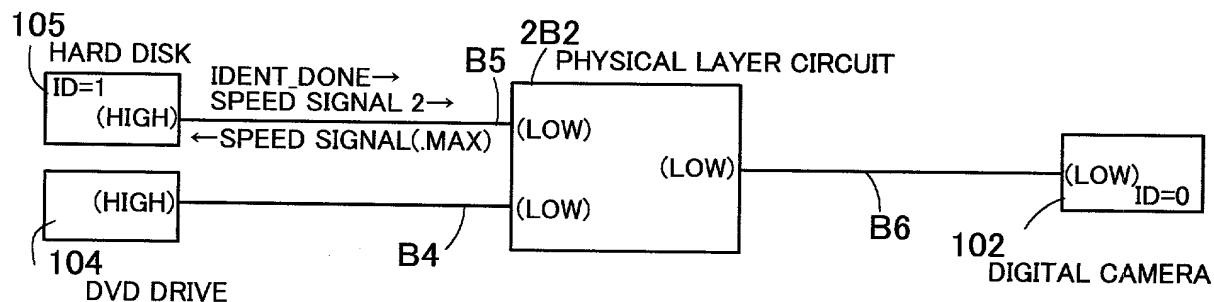
(P52) RECEIVE IDENT\_DONE AND SPEED SIGNAL FROM DIGITAL CAMERA  
AND OUTPUT SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF  
PHYSICAL LAYER CIRCUIT TO DIGITAL CAMERA



(P53) OUTPUT SELF\_ID\_GRANT TO HARD DISK, RECEIVE SELF\_ID PACKET  
OF ID = 1 FROM HARD DISK, AND TRANSFER IT TO DIGITAL CAMERA  
AND DVD DRIVE



(P54) RECEIVE IDENT\_DONE AND SPEED SIGNAL FROM HARD DISK AND  
OUTPUT SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF  
PHYSICAL LAYER CIRCUIT TO HARD DISK

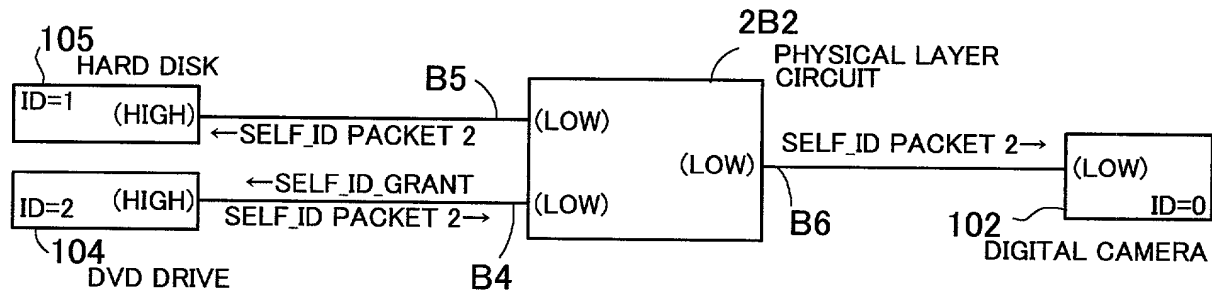




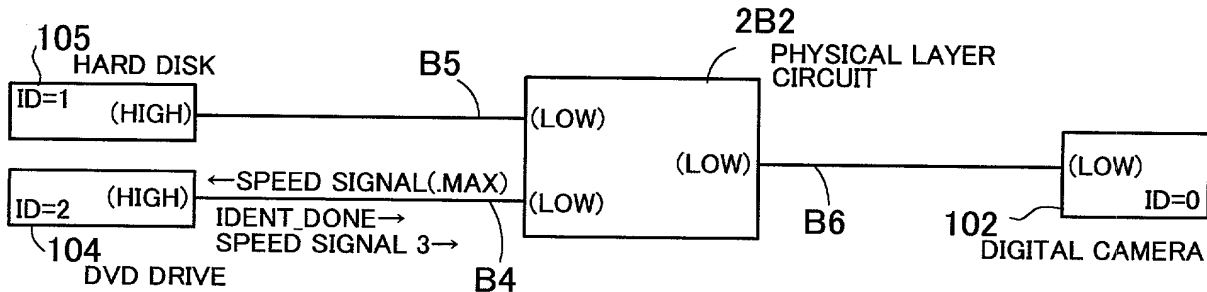
# FIG. 25

SELF-IDENTIFYING OPERATION (2) IN SECOND CONSTRUCTION EXAMPLE OF SECOND EMBODIMENT (IN THE CASE WHERE DEVICE CONNECTED ON THE OTHER SIDE DOES NOT HAVE DEVICE HAVING HIGH ARBITRATION)

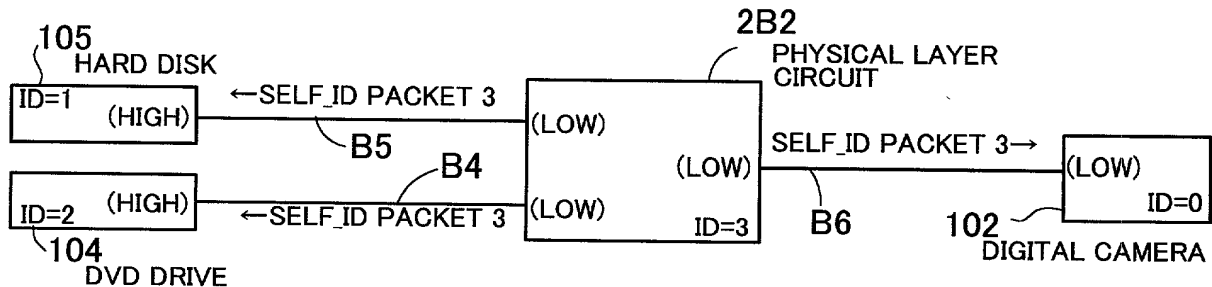
(P55) OUTPUT SELF\_ID GRANT TO DVD, RECEIVE SELF\_ID PACKET FROM DVD DRIVE, AND TRANSFER IT TO DIGITAL CAMERA AND HARD DISK



(P56) RECEIVE IDENT\_DONE AND SPEED SIGNAL FROM DVD DRIVE AND OUTPUT SPEED SIGNAL OF MAXIMUM TRANSFER SPEED OF PHYSICAL LAYER CIRCUIT TO DVD DRIVE



(P57) OUTPUT SELF\_ID PACKET OF ID = 3



(P58) OUTPUT SELF\_ID PACKET OF ID = n AND FINISH SELF-IDENTIFYING OPERATION

